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► **To cite this version:**

P. Marijn Poortvliet, Onne Janssen, Nico W. Van Yperen, Evert Van de Vliert. Low Ranks Make the Difference: How Achievement Goals and Ranking Information Affect Cooperation Intentions. *Journal of Experimental Social Psychology*, 2009, 45 (5), pp.1144. 10.1016/j.jesp.2009.06.013 . hal-00710455

HAL Id: hal-00710455

<https://hal.science/hal-00710455>

Submitted on 21 Jun 2012

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Accepted Manuscript

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PII: S0022-1031(09)00143-7
DOI: [10.1016/j.jesp.2009.06.013](https://doi.org/10.1016/j.jesp.2009.06.013)
Reference: YJESP 2300

To appear in: *Journal of Experimental Social Psychology*

Received Date: 17 March 2009
Revised Date: 21 May 2009

Please cite this article as: Poortvliet, P.M., Janssen, O., Yperen, W.V., de Vliert, E.V., Low Ranks Make the Difference: How Achievement Goals and Ranking Information Affect Cooperation Intentions, *Journal of Experimental Social Psychology* (2009), doi: [10.1016/j.jesp.2009.06.013](https://doi.org/10.1016/j.jesp.2009.06.013)

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Running head: ACHIEVEMENT GOALS AND RANKING INFORMATION

Word count: 2495

Low Ranks Make the Difference:

How Achievement Goals and Ranking Information Affect Cooperation Intentions

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Abstract

This investigation tested the joint effect of achievement goals and ranking information on information exchange intentions with a commensurate exchange partner. Results showed that individuals with performance goals were less inclined to cooperate with an exchange partner when they had low or high ranks, relative to when they had intermediate ranks. In contrast, mastery goal individuals showed weaker cooperation intentions when their ranks were higher. Moreover, participants' reciprocity orientation was found to mediate this interaction effect of achievement goals and ranking information. These findings suggest that mastery goals are more beneficial for exchange relationships than performance goals in terms of stronger reciprocity orientation and cooperation intentions, but only among low-ranked individuals.

Keywords: Achievement Motivation, Social Comparison, Cooperation, Reciprocity, Information Exchange.

Low Ranks Make the Difference:

How Achievement Goals and Ranking Information Affect Cooperation Intentions

When individuals perform complex tasks, cooperation with others can be paramount. However, during their task-related goal pursuits, some people may opt to engage in cooperation, whereas others prefer to work individually. For example, when individuals have the goal to improve themselves and know that they and a potential exchange partner are performing poorly on an academic task, they may seek cooperation in order to enhance their performances. In contrast, when poor performing individuals would rather outperform each other, they may want to work alone because of their engagement in interpersonal competition. By scrutinizing the joint effects of achievement goals and ranking information on cooperative information exchange, the current investigation aims to connect the achievement goal approach with social comparison research.

Achievement Goals and Task-Related Cooperation

Achievement goals reflect the aim of individuals' achievement pursuits. *Performance goal* individuals compare their performances with others, whereas *mastery goal* individuals compare their present performance with their previous performance (Van Yperen, 2003). Performance and mastery goals have typically been portrayed as approach forms of regulation, that is, directed towards desirable events (Elliot, 2005). Because we focus on approach goals in the present research, henceforth, performance-approach goals will be referred to as *performance goals* and mastery-approach goals as *mastery goals*. Because exchange partners are both social comparison targets and potential sources of information (Darnon, Butera, & Harackiewicz, 2007), people with performance and mastery goals may have

distinctive perspectives on information exchange (Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007).

Specifically, mastery goal individuals have no *outcome interdependence* with exchange partners because they reach their goal when they improve their performance regardless of others' performances. However, they may perceive *positive means interdependence* with the other party (Deutsch, 1949; Johnson & Johnson, 1989) as information exchange can serve as important means to attain self-improvement. These perceptions of positive means interdependence associated with mastery goals can be expected to enhance an individual's willingness to cooperate by exchanging information. Thus, experiencing positive means interdependence may direct individuals to take on a reciprocity orientation, defined as the confidence that giving useful information will result in receiving good information back (cf. Gouldner, 1960).

In contrast, performance goal individuals have *negative outcome interdependence* because they reach their goal when they outperform others. Such interdependence leads to a reduced willingness to coordinate effort with and be dependent on others, and a reduced readiness to be influenced (Deutsch, 1949; Johnson & Johnson, 1989). Performance goal individuals will therefore likely perceive *negative means interdependence* as well, which should inhibit a reciprocity orientation and cooperation intentions. However, we propose that this will be contingent upon the individuals' and their exchange partners' performance levels, or ranking information.

The Moderating Role of Ranking Information

Ranking information provides meaningful points of reference to compare one's task-related performance with others (Garcia, Tor, & Gonzalez, 2006).

Rankings are pervasive in various achievement domains as in academic settings (e.g., students' GPA's), business (e.g., benchmarking), or sports (e.g., ATP ranking).

Because performance goal individuals strive to outperform others and mastery goal individuals seek self-improvement, they may react differently to ranking feedback (Butler, 1995).

Furthermore, in the proximity of a meaningful standard (the top or bottom of a ranking), feelings of competition increase and the willingness to cooperate with commensurate others diminishes (Garcia et al., 2006; Garcia & Tor, 2007). So, people were less willing to cooperate when they and others had low or high ranks (e.g., #96 vs. #97, or #4 vs. #5, respectively on a top-100), compared to intermediate ranks (e.g., #51 vs. #52). Having low or high ranks implies that one is very close to being the best or worst, and makes competition salient (Festinger, 1954; Garcia et al., 2006; Mulder, 1977). Given that performance goal individuals see potential exchange partners as adversaries and because competition increases at the endpoints of rankings, we expected that performance goals would decrease the willingness to cooperate with others when ranks are low or high compared to intermediate.

In contrast, mastery goal individuals do not see potential exchange partners as rivals because they are primarily focused on self-improvement. Exchanging and pooling task-related know-how with others may facilitate rather than hinder their goal attainment (Poortvliet et al., 2007). Self-evidently, the wish to cooperate with others by exchanging information may be particularly strong among low-ranked mastery goal individuals (Ames, 1983; Hong, Chiu, Dweck, Lin, & Wan, 1999). As room for improvement is much smaller when ranks are high, individuals' commitment to mastery goals may decrease (Nicholls, 1984), and accordingly, their focus may be redirected to competitive aspects of high ranks (Tesser, Millar, & Moore, 1988). This

may cause mastery goal individuals to be less inclined to take on a reciprocity orientation and cooperate when their ranks are increasing.

Taken together, we propose that ranking information has distinct effects on individuals with differing achievement goals. Specifically, in line with Garcia and colleagues (2006), we anticipated a curvilinear relationship between ranking information and cooperation intentions for performance goal individuals. In contrast, for mastery goal individuals, we predicted a negative linear relationship between ranks and willingness to cooperate (see Figure 1). Consequently, only under low ranking conditions, we expected a difference between performance and mastery goal individuals. Furthermore, we expected that this interaction effect of achievement goals and ranking information on cooperation intentions would be mediated by individuals' reciprocity orientation.

Method

Participants and Design

Hundred and forty-one students (79 women; $M_{\text{age}} = 21.26$ years) participated for payment or course credit. Participants were randomly assigned to one of the conditions of the 2 (achievement goal: performance vs. mastery) \times 3 (ranking information: low vs. intermediate vs. high) design.

Procedure

The participants were asked to order twelve items of the winter survival exercise (Johnson & Johnson, 2000) and to enter their order into the computer. Participants were told that an ideal order existed, to which theirs would be compared. It was further told that a top-100 had been construed based on earlier orders and participants were informed that they occupied 96th, 51st, or 4th position (low, intermediate, or high own rank).

Then it was told that another participant also carried out this assignment, that there would be an opportunity to exchange task-related information, and that the other occupied 97th, 52nd, or 5th position on the top-100. So, in order to achieve commensurability, the participant and the other occupied two contiguous positions (Garcia et al., 2006). The participants were told that they were expected to make a final individual order after the information exchange opportunity. Then the achievement goal manipulation was induced by recommending the following goals: “perform better than the other on your second order” (performance goal), or “perform better on your second order than on your first order” (mastery goal; Van Yperen, 2003). Finally, participants answered questions about their attitudes and intentions to cooperate with the other, and manipulation checks were assessed.

Measures

Manipulation checks. Participants were asked to indicate which specific goal had been recommended to them. Participants could choose between performance and mastery goal. Ranking information manipulation was checked by asking participants which position they (own position; #1 to #100) and the other had (other’s position; #1 to #100).

Cooperation intention was measured by asking the participants the extent (1 = not at all, 7 = very much) to which they preferred to work together instead of individually on the task, and whether or not they actually opted for working alone rather than jointly on the task (reverse scored; $\alpha = .86$).

Reciprocity orientation was assessed with six items (1 = strongly disagree, 7 = strongly agree; $\alpha = .65$). Illustrative examples are: “I’m glad to help the other, because then I will surely receive a good deal of useful information in return”, and “It would

be naïve to expect the other to help you, simply because you help this person” (reverse scored).

Interest in other's information was assessed to check whether participants with differing ranks differed to the degree to which they feel dependent on help from their peers (six items; 1 = strongly disagree, 7 = strongly agree; $\alpha = .75$). An illustrative example is: “I hope that I can profit from the other's information”.

Results

Manipulation Checks

A chi-square test comparing observed with expected frequencies revealed that goal manipulation was successful, $\chi^2(1, N = 141) = 97.05, p < .001$. Recommended achievement goals were correctly recalled by 90.8% of the participants.

A 2×3 ANOVA on the *own* position measure yielded a main effect only for ranking information, $F(2, 135) = 7557.92, p < .001$. Similarly, a 2×3 ANOVA on the *other's* position measure yielded a main effect only for ranking information, $F(2, 135) = 1133.35, p < .001$. Follow-up analyses on both ranking information checks (LSD tests) indicated that the ranking information conditions all statistically differed in the predicted directions ($ps < .001$).

Cooperation Intention

Descriptive statistics of this variable are presented in Table 1. A 2 (goal: performance vs. mastery) $\times 3$ (ranking information: low vs. intermediate vs. high) ANOVA revealed a ranking information main effect, $F(2, 135) = 4.68, p = .01, \eta_p^2 = .07$, qualified by the interaction effect, $F(2, 135) = 3.21, p = .04, \eta_p^2 = .05$. The goal main effect was not significant, $F(1, 135) = .32, ns, \eta_p^2 = .00$. The simple main effect of goal manipulation in the low-ranking condition was significant, $F(1, 135) = 5.34, p = .02, \eta_p^2 = .04$, unlike in the intermediate or high-ranking conditions, $ps > .29$.

To test for the negative curvilinear relationship between ranking information and cooperation intention in the performance goal condition, and the negative linear relationship in the mastery goal condition, we entered the linear and quadratic equations in two regression analyses for both achievement goals. For the performance condition, the quadratic equation was indeed significant in the predicted direction ($B = -.86, t = -2.16, p = .02$, one-sided), whereas the linear equation was not ($B = -.16, t = -.72, ns$). For the mastery condition, the linear equation was significant in the predicted direction ($B = -.76, t = -3.18, p < .01$), whereas the quadratic equation was not ($B = .15, t = .37, ns$).

Mediation analysis

A 2×3 ANOVA on the reciprocity orientation scale yielded main effects of achievement goal, $F(1, 135) = 6.29, p = .01, \eta_p^2 = .04$, ranking information, $F(2, 135) = 3.62, p = .03, \eta_p^2 = .05$, and the interaction effect, $F(2, 135) = 3.88, p = .02, \eta_p^2 = .05$ (see Table 2 for descriptive statistics). For the performance condition, the quadratic equation was significant in the predicted direction ($B = -.45, t = -1.80, p = .04$, one-sided), whereas the linear equation was not ($B = .01, t = .09, ns$). For the mastery condition, the linear equation was significant in the predicted direction ($B = -.44, t = -2.70, p < .01$), whereas the quadratic equation was not ($B = -.09, t = -.32, ns$). The simple main effect of goal manipulation in the low-ranking condition was significant, $F(1, 135) = 12.33, p < .01, \eta_p^2 = .08$, unlike in the intermediate or high-ranking conditions, $ps > .26$.

As the interaction effect between achievement goal and ranking information on cooperation intention was expected to run via participants' reciprocity orientation ($r = .37, p < .001$), a mediated moderation analysis was performed (Muller, Judd, & Yzerbyt; see Table 3). With reciprocity orientation included in the regression model, the

interaction between achievement goal and ranking information was no longer significant. A Sobel test confirmed that the mediation effect was significant, $Z = 2.24$, $p = .03$.

To test for the explanation that the participants' reciprocity orientation was a justification of their behavioral choice, the alternative model with cooperation intention as mediator and reciprocity orientation as dependent variable was investigated. The Sobel test showed that this alternative model was not significant, $Z = 1.62$, *ns*.

Interest in information

Finally, a 2×3 ANOVA on the interest in information scale yielded no effects of achievement goal or ranking information, nor an interaction effect, $ps > .30$. No indications were found that across conditions participants differed to the extent to which they wanted to profit from their exchange partner's information.

Discussion

The results of this study aligned with our expectations. Specifically, when ranks of performance goal individuals were low or high, rather than intermediate, cooperation intentions were relatively weak, but cooperation intentions of mastery goal individuals decreased when their ranks increased. In line with our predictions, only low-ranked mastery and performance goal individuals differed with regard to the intention to cooperate with a commensurate exchange partner. This observation connects well to early work by Dweck and Leggett (1988) arguing that mastery and performance goal effects are most pronounced when individuals' perceived ability is low. Furthermore, under differing ranking conditions mastery and performance goal individuals are differently oriented towards reciprocity.

The current results are in line with the findings reported by Garcia and colleagues (2006) for performance goals only. In contrast, low ranking feedback is seen as indicating a large potential for personal improvement and accordingly strengthens the willingness to cooperate for mastery goal individuals, but this willingness decreases when ranks increase. Apparently, performance goal individuals with intermediate ranks behave atypically, whereas mastery goal individuals show atypical weak cooperation intentions upon receiving high-ranking information. It should be noted that in our investigation participants received a ranking that was one position above the exchange partner's ranking. Given their respective focus on outperforming others and on self-improvement, it could be argued that for performance and mastery goal individuals, receiving a lower ranking instead could offer a threat or an opportunity, respectively. Therefore, when making upward instead of downward comparisons, the difference between mastery and performance goal individuals may even be larger.

The present investigation showed that positive interpersonal outcomes of mastery goals over performance goals seem to be limited to a low-ranking information context. One might argue that in such a context, performance goal individuals could have non-competitive reasons for being reluctant to cooperate, like feeling less dependent on peers or not expecting to profit from others' information (cf., Dweck & Leggett, 1988). However, we found no differences across conditions with regard to individuals' interest in exchange partners' information, making such alternative explanations less plausible.

This study offers an important amendment to the idea that performance goals typically lead to unfavorable outcomes relative to mastery goals with regard to interpersonal behaviors, such as withholding information (Poortvliet et al., 2007), and unsportsmanlike behavior (Ommundsen, Robberts, Lemyre, & Treasure, 2003). Only

individuals with performance goals and low ranks were actually less inclined to cooperate with others than their counterparts with mastery goals. Particularly when confronted with high-ranking information, individuals with either achievement goal have less willingness to engage in task-related cooperation due to their relatively weak reciprocity orientation. However, as individuals often need to work together in order to perform well (e.g., in product development teams, sports teams, or an orchestra), the promotion of mastery goals in achievement contexts seems, overall, most appropriate.

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Table 1

Means and Standard Deviations of Cooperation Intention as a Function of Achievement Goal and Ranking Information

Goal	Ranks					
	Low		Intermediate		High	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Performance	4.33	2.00	5.02	1.29	4.00	1.29
Mastery	5.42	1.43	4.50	1.57	3.89	1.90

Note. Means are on a 7-point scale, with higher values indicating a stronger intention to cooperate.

Table 2

Means and Standard Deviations of Reciprocity Orientation as a Function of Achievement Goal and Ranking Information

Goal	Ranks					
	Low		Intermediate		High	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Performance	4.24	.87	4.56	.70	4.33	.86
Mastery	5.11	.97	4.84	.67	4.24	.93

Note. Means are on a 7-point scale, with higher values indicating a stronger reciprocity orientation.

Table 3

Regression Results for Mediated Moderation Analysis

Predictors	Cooperation		Reciprocity		Cooperation	
	Intention		Orientation		Intention	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
Achievement Goal	-.16	-.58	-.36	-2.52*	.10	.37
Ranking Information	-.47	-2.81**	-.20	-2.28*	.21	.26
AG × RI	.59	1.78 [†]	.48	2.74**	.26	.79
Reciprocity Orientation					.61	3.89***
RO × RI					-.12	-.71

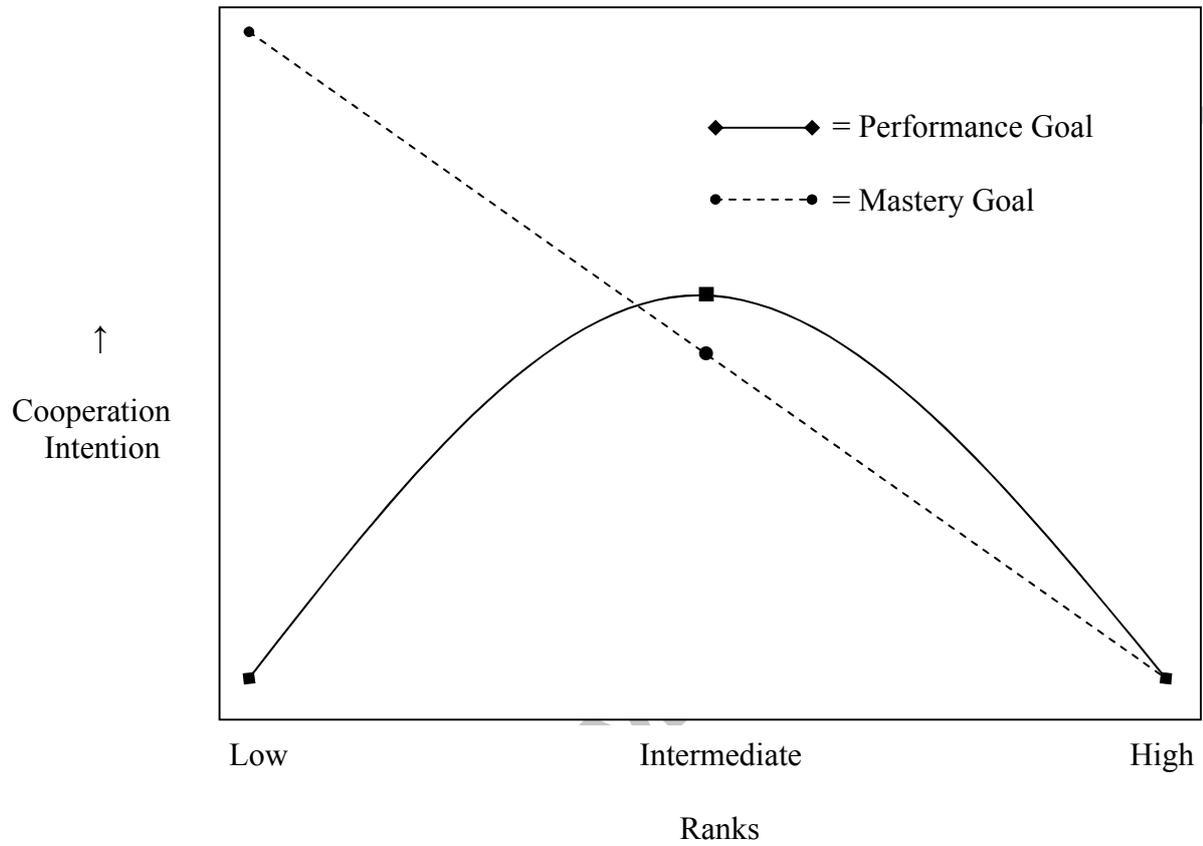
Notes. AG = achievement goal; RI = ranking information; RO = reciprocity orientation

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure caption

Figure 1. Expected joint effect of achievement goals and ranking information on cooperation intention.

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